PRODUCTS REVIEW

GENERAL MOTORS PRODUCTS

"Looks Fine for '39"

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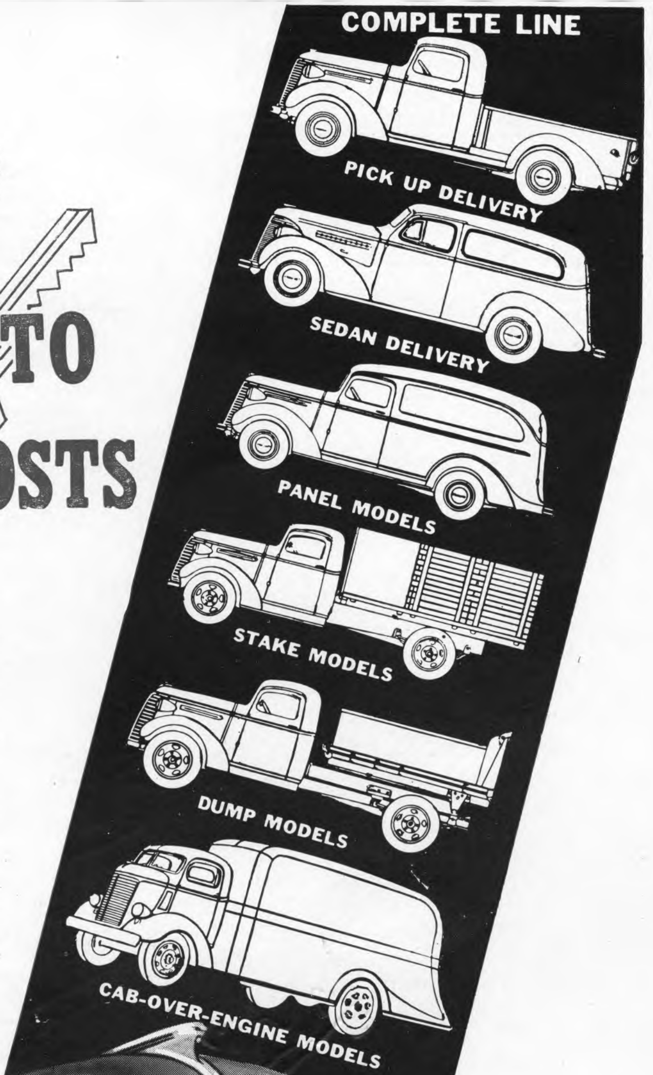
CHEVROLET TRUCKS 1939

6 KEYS TO LOWER TON-MILE COSTS



With new models ranging over six fields, and covering 97% of all hauling requirements, Chevrolet and Maple Leaf Trucks for 1939 offer six economical solutions to trucking problems. Here are the stand-out advancements, by models: ½-TON—new Chassis and Cab, Pick-up Express and Panel Delivery with "Turret-Top" body, all with improved front springs . . . ¾-1 TON — Chassis and Cab, new Express body and Panel body . . . 1½-TON—133" or 158½" wheelbases . . . 2-TON—a new line, with dual wheels and helper springs . . . 2-TON CAB-OVER-ENGINE—full-width seat in new cab; 108" or 131" wheelbases . . . 2½-TON MAPLE LEAF—three longer wheelbases, new heavier frame, heavy-duty clutch, heavier springs . . . ALL have perfected Hydraulic Brakes, Special Valve-in-Head Truck Engine, new styling, sturdier V-type all-steel Cabs.

T39-CT2

HIGH QUALITY LEADERSHIP AT LOW PRICE

PRODUCTS GM GENERAL MOTORS PRODUCTS REVIEW

VOL. 2, NO. 5 JANUARY, 1939

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EDITORIAL

"ACCENT ON TRUCKS"

by C. E. McTavish

General Sales Manager, General Motors Products of Canada

Over the paths blazed by the covered wagons and pack-trains of an earlier era, motor trucks and transports today carry an ever-increasing share of the land-borne commerce of Canada, and contribute in growing measure to the progress and stability of the nation. Therefore the enlightened manufacturer of motor vehicles devotes to the production and marketing of commercial units a degree of care and effort commensurate with their growing importance in the world of business and industry.

Present emphasis upon motor transport focuses attention upon the many improvements incorporated in the new 1939 Chevrolet, Maple Leaf and GMC trucks. These units range in capacities from ½ to 2½ tons, and include also a new 2-ton conventional and 2-ton cab-over-engine model. Advances include a ball-bearing water pump; a new stabilized front end; longer wheelbase on all models and a V-type three-man all-steel cab. The 1939 GMC units include the foregoing improvements, as well as a new "Borg and Beck" long-life clutch in the 2½-ton models, and the improved 224 special GMC truck engine which is widely known for its power and economy.

In the history of General Motors of Canada, the progress and development of the commercial motor vehicle has been fostered and guided hand-in-hand with the evolution of the passenger automobile. Having thus attained a dominant position in the competitive manufacture of both types of vehicles, this great Canadian company can look with pride on the tremendous contribution which it has made, by excellence of product and progressiveness of policy, to the great and growing trucking industry of this Dominion.

WINTER MOTORING

With the main motor roads of Canada now being kept open throughout the winter, and an ever increasing number of smaller arteries patrolled by snow plows, an often unrecognized responsibility falls upon the garageman and mechanic in helping to promote the cause of safety among cold-weather motorists.

Not only can the alert service man contribute added protection to his customers with the coming of winter weather, snow and ice-clad roads, but he can serve his own business interests by giving extra attention to minor mechanical details which often spell the difference between safety and misfortune. In this category come such things as unequal braking, faulty steering, smooth tires and other mechanical defects.

Such extra service, cheerfully given, not only helps to remove much of the potential grief from winter motoring, but enables the enterprising garageman to gain repeat business from appreciative customers.

THE 1939 PARTS SHOW

In Booth No. 8 at the Canadian Automotive Service Show, being held at the Royal York Hotel in Toronto from January 31 to February 2, will be found an exhibit of which General Motors Products of Canada is justly proud. It is the display being offered by the United Motors Service—AC—Packard Cable Division, and comprises one of the most comprehensive and diversified collections of parts and accessories ever assembled at any automotive show in the Dominion.

The UMS-AC-Packard Cable section of the Show is expected to highlight the three-day event, to which the attention is directed of all those interested in the operation, maintenance and service of motor vehicles. A tour of the so-called "Parts Show"—and particularly of Booth No. 8—will prove a revelation even to service men of long experience.

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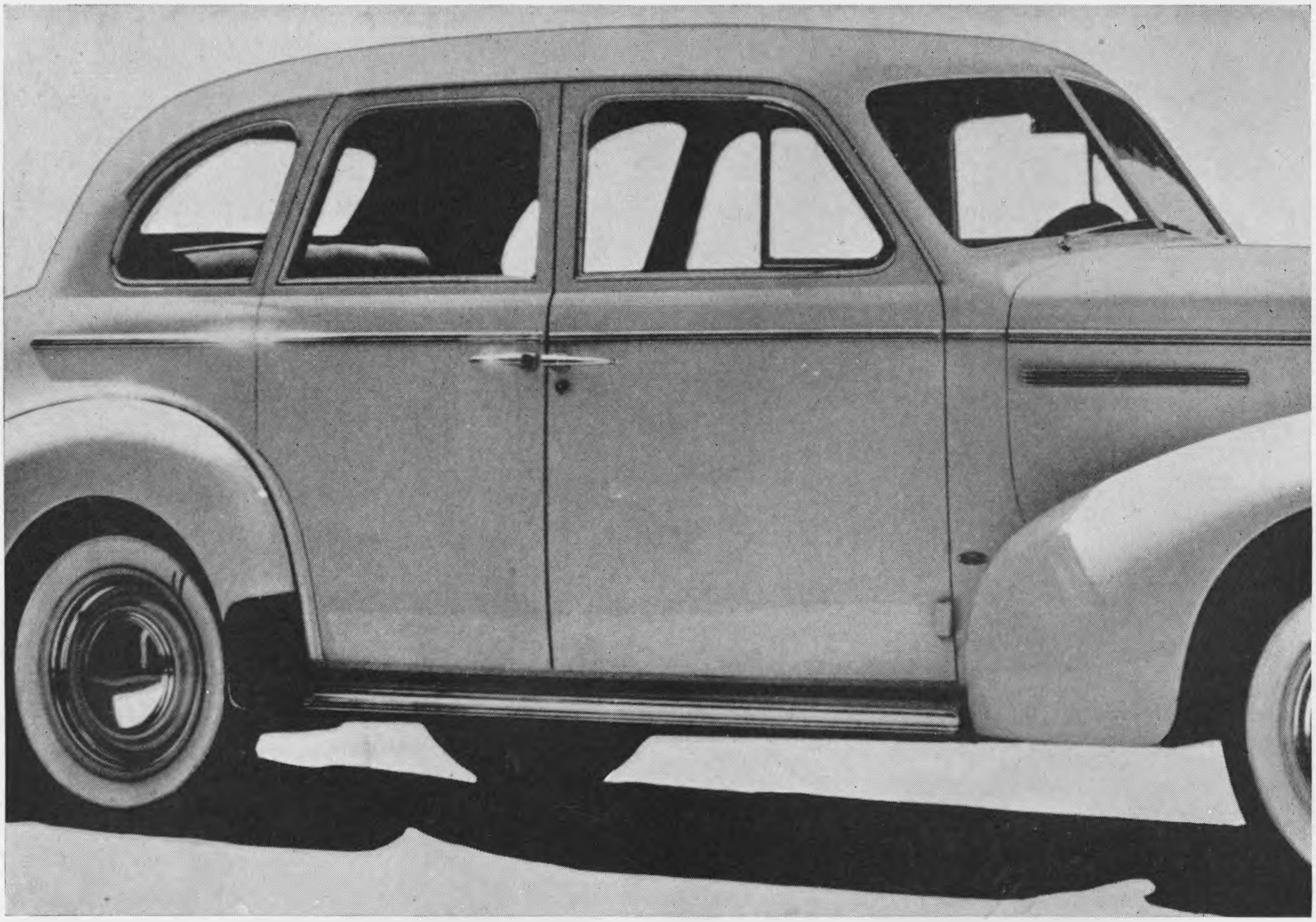
CONCEALED TYPE DOOR HINGES

1939 McLaughlin-Buick Series 4400 and 4600



View of 1939 McLaughlin-Buick with Concealed Hinges.

THE new concealed type door hinges are used on the 1939 McLaughlin-Buick series 4400 and 4600 cars, except at the bottom of the front doors, where the hinge used is the same as on 1938 cars. The removal of the hinges from the outside of the body, is a distinct improvement in appearance, since it removes all obstruction except for the door handles. The service procedure in removing and replacing these new hinges is given on the following pages.

REAR DOOR HINGE

The rear hinges, upper and lower, are made up in a single unit;—therefore, it will be impossible to remove the one hinge without the other.

From a service standpoint, this unit is broken down, so that it is possible to secure any one of the removable parts, such as the hinge straps, hinge pins, hinge box assembly, etc.

To Remove the Hinge From the Body

1. Remove the six "Phillip-head" attaching screws,—four from the face of the box assembly as shown at "A" figure 194, and the two located in the back of the hinge box,—as shown at "B". To remove these screws, it will be necessary to use a large Phillip screw driver, adaptable for a wrench.

   Note—It is advisable to remove the door check link strap retaining screw "C" figure 194, from the check link to permit easier access to the two screws in the back of the hinge box.
2. Remove the rear quarter trim panel.
3. Remove the door check link anchor nut "D" shown in figure 195, from the back of the body hinge pillar.

Upon completion of these operations, the hinge is now ready to be removed from the body pillar. To do this it is necessary to close the door to a point where it is approximately half way open.

Pry the top of the hinge box assembly "E" figure 194, out from the pillar to a point where it is freer, permitting the complete assembly to be rotated outwords and upwards.

A revised method of attaching will be on later Production jobs. On these later jobs the door check link anchor nut will be bolted or anchored to the box assembly in place of to the hinge pillar proper, the hole in the hinge pillar being made large enough to permit the anchor nut to pass through without interference.

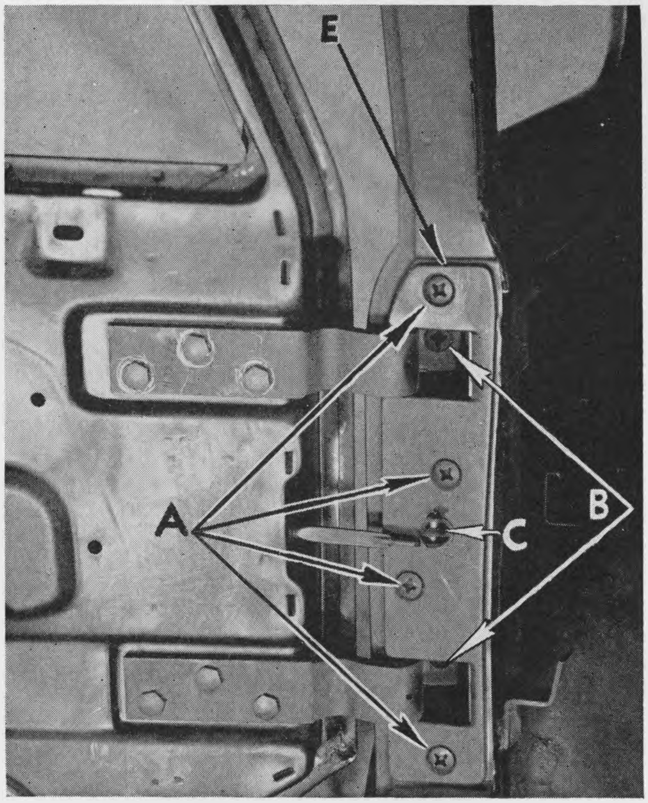


Fig. 194.

Whether or not the body is equipped with the first or second design can be determined upon the removal of the six screws from the hinge box assembly. If it is of the revised type it will be possible to remove the assembly without further operations. If the assembly is still anchored to the pillar, it will then be necessary to remove the quarter trim panel to permit access to the anchor nut.

To Remove the Hinge From the Door:

1. Remove the small screw attaching the check link strap to the check link anchor nut.
2. Remove the six cap screws attaching the hinge straps to the door panel.

(The Door Check Link has been reversed, in comparison with former Models, whereby the rubber bumper assembly is now located in the door, rather than in the rear quarter.)

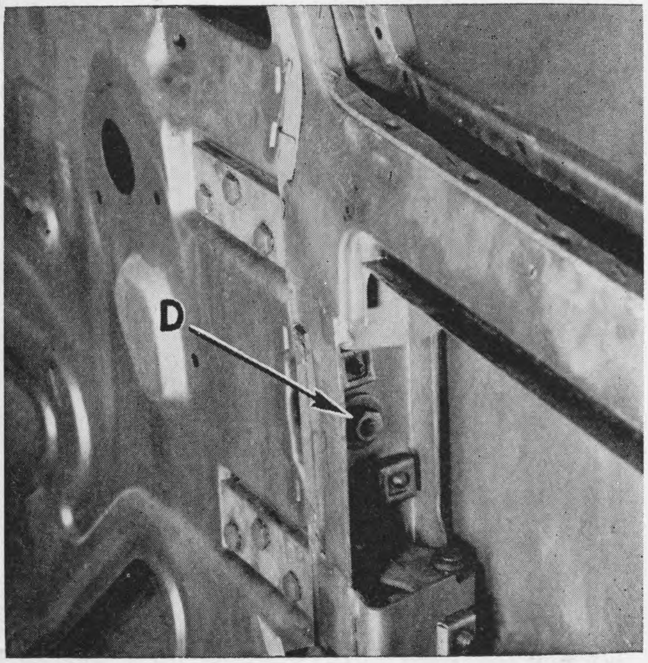


Fig. 195.

ADJUSTMENTS.

All new type hinges are adjustable in and out, up or down and fore and aft. This is made possible because:

1. The holes in the body pillar are square, permitting the anchor nuts to move up or down and in or out.
2. The holes "F" figure 196, in the door panel are sufficiently oversize to permit the tapped anchor plate "G" to move up or down and fore or aft.

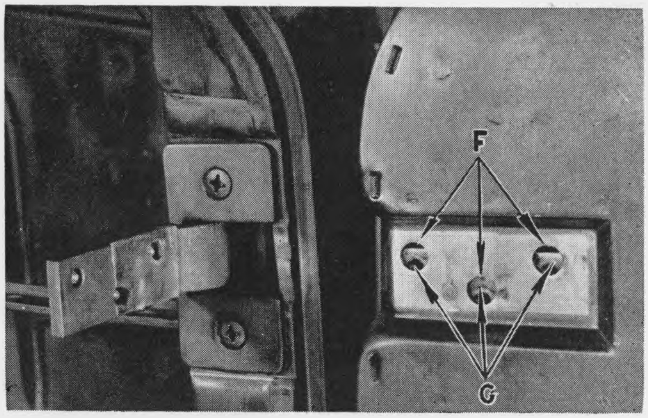


Fig. 196.

REASSEMBLY

To reassemble the hinge and door, reverse the removal operations.

FRONT DOOR HINGE

The front door concealed hinge is a single unit, as shown in figure 197. The removal and replacement operations for this hinge are basically the same as for the rear hinge assembly just described.

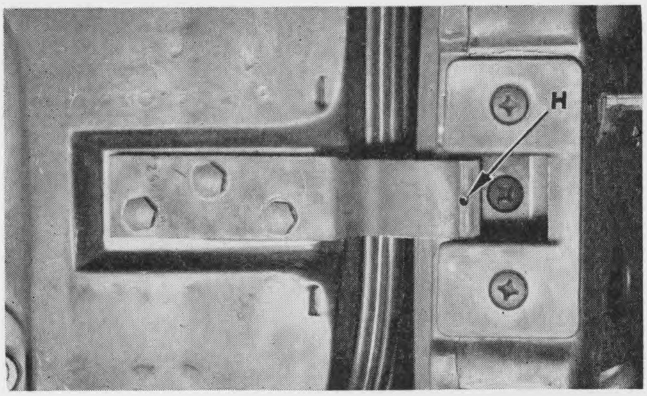


Fig. 197.

LUBRICATION METHOD

On the new type hinge it is necessary to use a pressure gun for lubrication of the hinge pin. The oil hole is located at "H" figure 197, and is drilled through the hinge strap back to the pin. Ordinary oiling does not supply the upper bushing with lubrication. Therefore, it will be necessary to lubricate the hinge under pressure. This will force the lubricant through the spiral grooves in the pin into the upper bushing. (Graphite grease is recommended).

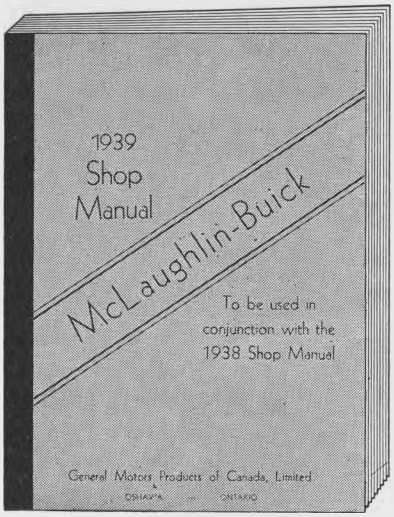
Caution—Care should be taken to protect passengers from surplus grease.

1939 McLaughlin-Buick Shop Manual

The Shop Manual covering 1939 McLaughlin-Buick cars, is now available from the Service Departments at Oshawa and Regina.

This Manual is to be used in conjunction with the 1938 Shop Manual. It covers all points of difference in servicing the 1939 automobiles and refers to the page numbers in the 1938 Manual where service instructions are the same for both years.

Copies of the manual are available at 50c per copy. Copies of the 1938 Shop Manual are available also, at 75c per copy.



1939
Shop
Manual

McLaughlin-Buick

To be used in
conjunction with the
1938 Shop Manual

General Motors Products of Canada, Limited
OSHAWA — ONTARIO

Warning!

When raising a 1939 McLaughlin-Buick on any "Free Wheel" type of lubrication lift or hoist, care must be taken to avoid damaging the parking brake cable. This cable extends from the equalizer to the rear brakes and passes underneath the rear axle housing at the point where the rails of the lift would ordinarily make contact.

When one of these cars is raised on a "free wheel" lift or hoist of any make regardless of the design of the rear axle block, the brake cable will be crushed against the axle housing unless a special attachment is used.

Some equipment manufacturers have released differential cradle attachments which will fit any make of lift. These attachments are not expensive and are so designed that they take the weight on the housing at the differential and avoid the possible damage mentioned above.

If one of these attachments is not available a temporary arrangement can be made by placing a piece of "four by four" three or four feet long on the lifting platform. This should be placed parallel to the rear axle and so located that when the lifting platform rises to pick up the car the "four by four" will come in contact with the frame just forward of the rear tires.

This method is not as safe or efficient as using the differential cradle, but if care is exercised it should prove reasonably satisfactory until a permanent attachment can be secured.

Step Head Pistons

(G.M.C. Truck Engines 239, 257, 286, 331 and 400)

During 1938 Production a change was made in the pistons of the above engines which increased the compression ratios materially. The new pistons are known as step head pistons.

These changes became effective with engine No. 1239-11506, 1257-4127, 1286-2008, 1331-5679 and 1400-2675.

The change in compression ratios was as follows:

239 engines from 5.2 to 1 to 6 to 1
257 engines from 5 to 1 to 6 to 1
286 engines from 4.9 to 1 to 6 to 1
331 engines from 4.74 to 1 to 5.8 to 1
400 engines from 4.75 to 1 to 5.8 to 1

With the change to higher compression ratios, the ignition timing specification was also changed to:

239, 257 and 286 engines from 15 degrees before top dead center to 6 degrees after top dead center.

331 and 400 engines from 15 degrees before top dead center to on top dead center.

Fuel having an octane rating of not less than 68 should be used.

Steering Wheels

(1939 Chevrolet)

Three types of steering wheels are used on the 1939 Series Chevrolet cars, namely, the regular equipment wheel for Master Series, the regular equipment wheel for Master Deluxe Series and the optional special wheel which may be used on either Series.

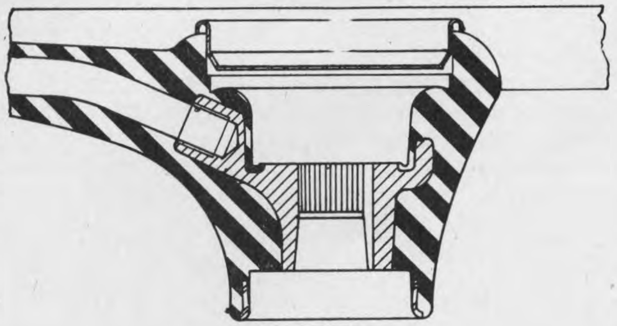


Fig. 221.

The hub of the Master Deluxe Steering Wheel, Fig. 221, differs from that of the Master Series, shown in Fig. 222, due to the fact that a ball bearing is used at the upper end of the steering shaft on the former, while the latter uses a bushing at this point. In other respects these wheels are the same, but in view of this difference, they are not interchangeable.

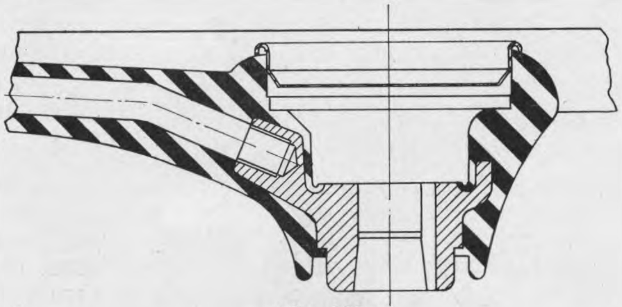


Fig. 222.

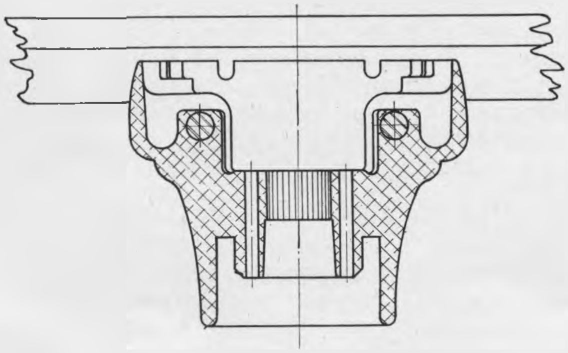


Fig. 223.

The hub of the optional steering wheel, Fig. 223, is so designed that it may be used on either Series. Where a change is made from a regular wheel to the special wheel, or vice-versa, a slight readjustment of the mast jacket height may be necessary. The mast jacket height should be set so that the horn will blow when the button is depressed 1/8″.

Carburetor

Avoid Trouble

After a car manufacturer's engineers have developed a motor, and the carburetor has been carefully designed and calibrated to deliver the correct fuel-air ratios throughout entire range, the resulting maximum in performance and economy is the standard we must maintain for the car owner. Don't waste time trying to improve on this standard. Your job is to see that this standard is maintained. See article on page 147.

Front Shock Absorber

(Chevrolet 1000 Series Only)

The front Shock Absorbers on the Chevrolet 1000 series are of the new end-to-end discharge type. The only service operations which can be performed on them are to fill the shock absorber with shock insulating fluid and to replace the control valves. To fill the shock absorber remove the filler plug and use a KMO-1026 Filler Gun to fill the shock absorber with shock insulating fluid.

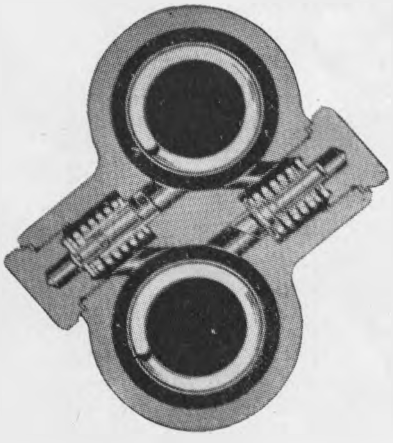


Fig. 224.

The front end of the car should be bounced up and down several times to make sure all air is removed. Then complete filling the shock absorber and replace the plug.

The upper shock absorber valve is the compression. It may be identified by the angular shape of its inner end. The valve plug is marked "D-5." The lower valve is the rebound and it may be identified by the slot cut through the sleeve on its lower end. The valve plug is marked "2-E," (Figure 224). Care must be exercised not to transpose the valves otherwise the easy riding qualities of the car will be destroyed.

FRONT END ALIGNMENT

1939 Chevrolet 1000 Series

FRONT Wheel Alignment is the mechanics of adjusting all the inter-related factors affecting steering. Incorrect alignment of front wheels may result in hard steering, car wander, shimmy, and abnormal tire wear. The following are the wheel alignment specifications at CURB LOAD:

Camber	Negative ¼°	±	½°
Caster	0°	±	½°
Kingpin Inclination	4¾°	±	½°
Toe-In	0″ to 1/16″		
Steering Geometry (Toe-out on turns)			
Outside Wheel	20°		
Inside Wheel	24°	±	2°

Inspection Routine

The following inspections and adjustments must be made before attempting to check the various angles of the front end:

1. Inflate all four (4) tires to the proper pressure—front 26 lbs., rear 28 lbs.
2. Check front wheel bearings for looseness and adjust them if necessary.
3. Check kingpin bushings for looseness. Badly worn bushings must be replaced before proceeding with the inspection.
4. Check tires for correct mounting on the rims and check the wheels for run-out and eccentricity.
5. Check ball and socket joints for looseness in the joint or in their mountings in the steering arms and pitman arm plate.
6. Check steering gear for looseness and adjust if necessary.

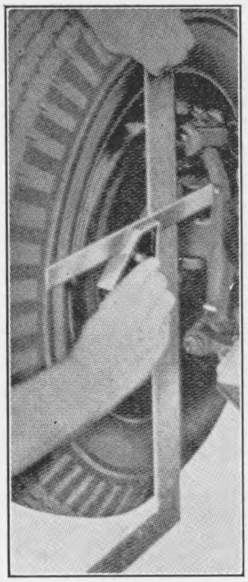


Fig. 215.

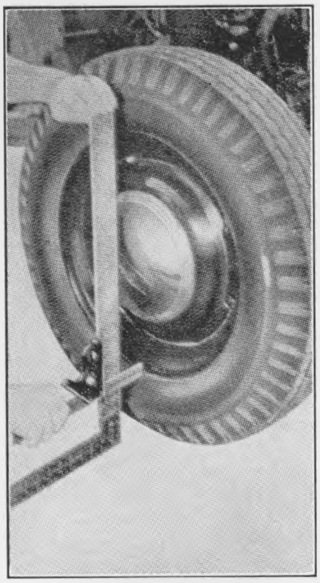


Fig. 216.

After completing the inspection routine and making any necessary adjustments, the front end angles may be checked with any reputable front end alignment equipment. If such equipment is not available the caster and camber may be checked with a carpenter's square.

Checking Caster

With the car on a level floor (CURB LOAD) and the wheels in the straight-ahead position, place a carpenter's square on the floor in front of the two (2) machined bosses on the steering knuckle support. Then using a combination square, measure from the edge of the carpenter's square to the lower boss on the knuckle support, (Figure 215.) Lock the combination square on the scale and then measure from the carpenter's square to the upper boss. The measurements should be the same to plus or minus 1/16″.

Checking Camber

1. Raise the front end of the car with a jack. Spin the front wheels while holding a piece of chalk against the side wall of the tire. The chalk will leave a mark where the wheel runs out and will miss where the wheel runs in. When checking camber, the place where the chalk mark is the heaviest should be placed in the horizontal plane. By following this method we will be checking the camber at the points of mean run-out.
2. See that the car is on a level floor and that the wheels are in the straight-ahead position.
3. Place a carpenter's square on the floor at right angles to the wheel. Then measure from the square to the outer edge of the rim, starting at the bottom, (Figure 216). The distance from the square to the rim should be from ¼″ MORE to 3/32″ LESS at the top than at the bottom.

Caster and Camber Adjustments

The caster and camber adjustments are both performed by turning the upper control arm pivot pin. This pivot pin is threaded in the knuckle support and also in the front and rear bushings in the control arms, (Figure 217). In addition, it has a 3/32″ eccentric. So being the case, turning the pivot pin affects both caster and camber. One turn of the pivot pin always changes the caster angle approximately one and one-third degrees. The maximum difference in camber which can be made with adjustment, is approximately one degree. Caster and camber adjustments must be made together and in relation to each other.

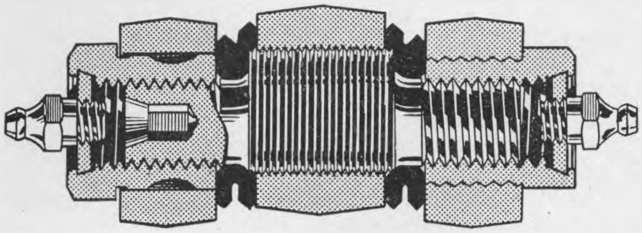


Fig. 217.

1. Loosen clamp bolt at upper end of steering knuckle support.
2. Remove lubrication fitting from the front upper pivot pin bushing.
3. Insert ¼″ Allen Set Screw Wrench through the hole from which the lubrication fitting was removed, (Figure 218).

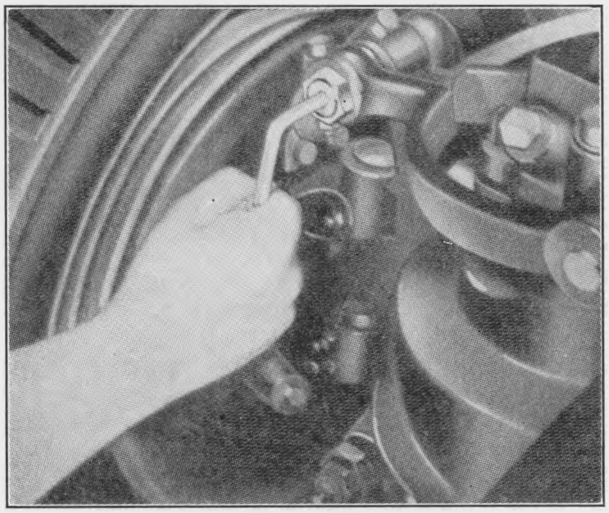


Fig. 218.

4. Turning the pivot pin in a clockwise direction increases caster; while turning it in a counter-clockwise direction decreases caster. At the same time the camber may remain practically the same or it may move in a positive or negative direction depending on the location of the eccentric. After making a slight turn of the pivot pin, both caster and camber must be re-checked and adjustments made that will bring both angles within the limits given above. After completing the adjustment, tighten the knuckle support clamp bolt and install the lubrication fitting.

Setting Toe-In

Toe-In can be adjusted by loosening the clamp bolts at each end of the left hand tie-rod and turning the tie-rod to increase or decrease its length until proper toe-in is secured.

CAUTION: Before locking clamp bolts make sure that the tie-rod ends are in alignment with their ball studs. If the ball seats are not in alignment with their ball studs, binding and hard steering will result.

When making repairs on the S. L. A. Independent Front Wheel Suspension System, the most important thing to remember is that the entire steering mechanism must be as free as possible for satisfactory operation.

Car Heater Installation

(1939 Oldsmobile)

In order to allow space for the installation of radios in 1939 Oldsmobile cars, the heater knock out plugs located in the center of the dash panel are not used in Production. Where heaters are installed at the Factory, new holes are drilled at the right hand side of the dash in the locations shown in figure 219.

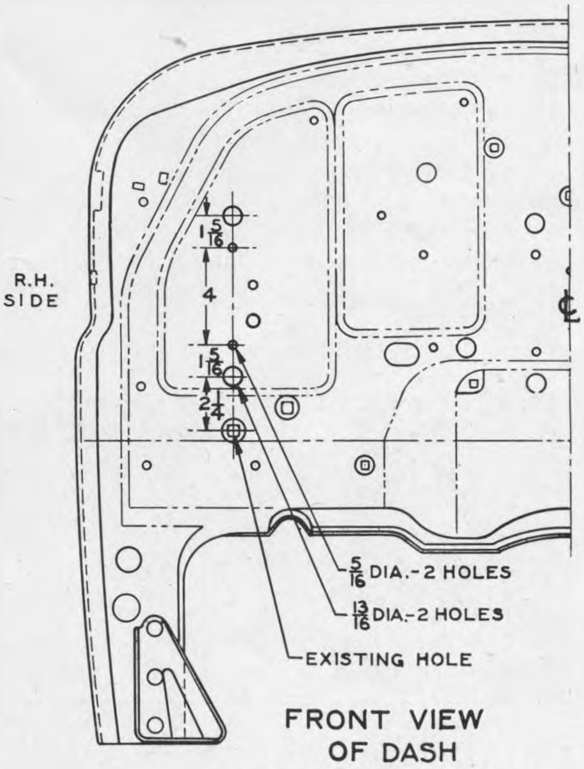


Fig. 219.

In service, the center location may be used if it is known that a radio is not going to be installed. If a radio is required also, the dash should be drilled in accordance with the instructions given in figure 219.

The same heater kit may be used for either the center or right hand dash location.

Kingpin Bushings

(1939 Chevrolet 1000 Series)

The following instructions give the necessary steps to follow in removing and replacing the kingpin bushings on the 1000 series Chevrolet cars.

Disassembly

1. Place a jack under the spring seat, raising the car off the floor and remove the wheel and tire assembly.
2. Remove the kingpin lock pin; then remove the dust cover and lock rings from each end of the steering knuckle.
3. Remove the steering knuckle expansion plugs. This can be done with a sharp drift punch by driving through the lower expansion plug. Then drive the kingpin upward until the upper expansion plug is removed, (Figure 220). The kingpin may then be removed by driving it out at the bottom, using a soft steel drift.
4. Remove steering knuckle and thrust bearing from the knuckle support and remove the floating bushing from the knuckle.

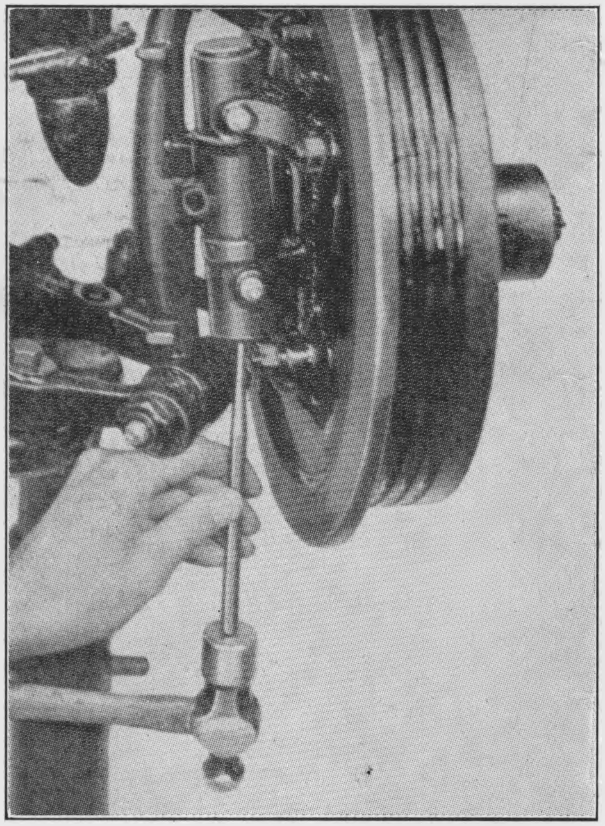


Fig. 220.

Reassembly

When replacing the floating kingpin bushings it is not necessary to ream them to size as service bushings are machined to finished dimensions. However, when replacing floating bushings care should be used to make sure the oil hole in the bushing lines up with the lubrication fitting in the steering knuckle. These bushings should be free both on the kingpin and in the steering knuckle.

1. Install new bushings in the steering knuckle and place the knuckle on the knuckle support. Then install the thrust bearing between the lower yoke of the steering knuckle and knuckle support, making sure that the shield on the bearing is towards the top.
2. Install the kingpin from the bottom, making sure to line up the lock pin slot with the lock pin hole in the knuckle support.
3. After the kingpin is installed, check the clearance between the steering knuckle and knuckle support with a feeler gauge. If this clearance is more than .006″, install a steel shim between the steering knuckle and knuckle support.
4. Install the kingpin lock pin, expansion plugs, lock rings and dust covers.
5. Install the front wheel and tire assembly. Check the toe-in and adjust if necessary.

Removal and Replacement of Front Suspension Unit Assembly

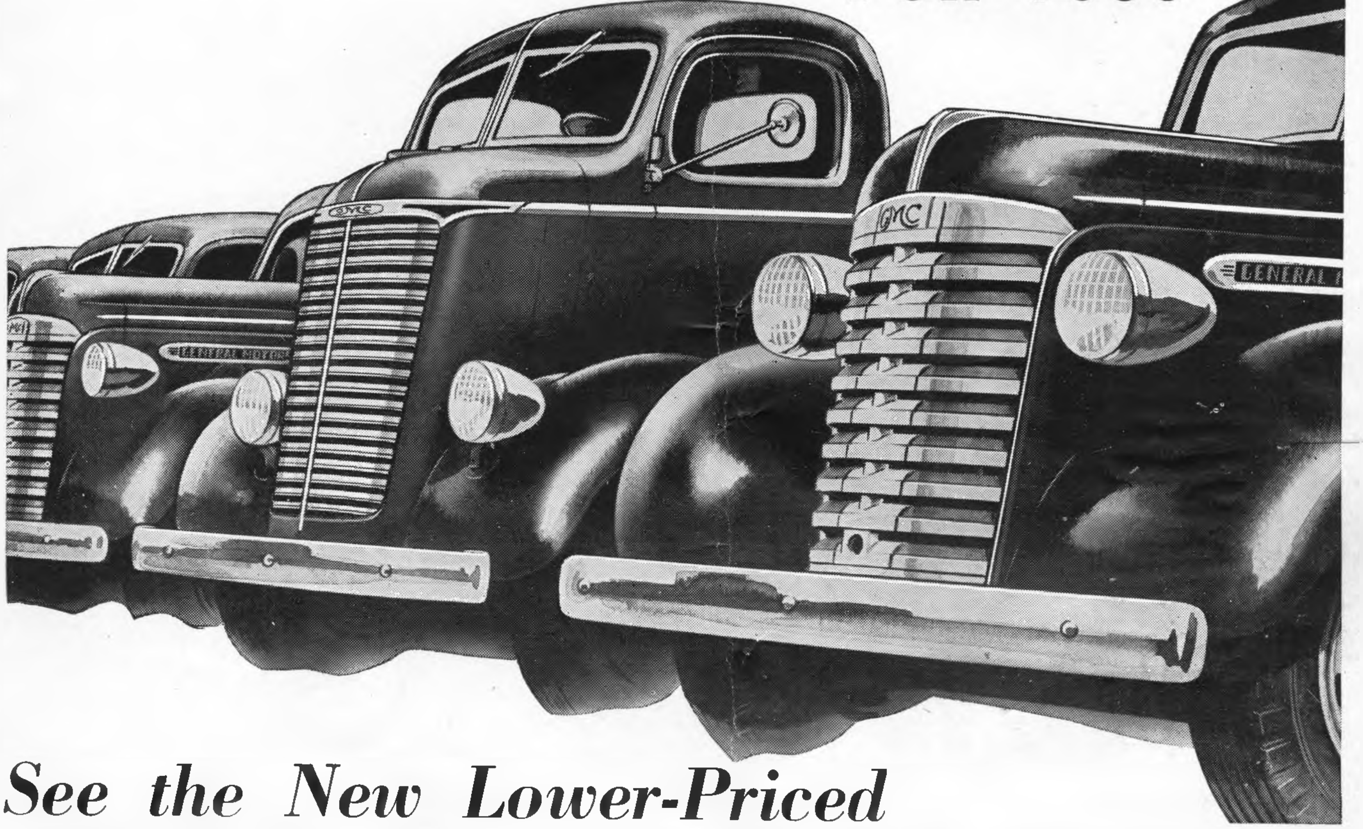
(1939 Chevrolet 1000 Series)

Should it become necessary to replace a frame due to damage in collision, the entire front end unit may be removed from the damaged frame and replaced on the new one without disassembling the unit. This feature saves a great deal of time when making a frame replacement. To remove and replace the unit as an assembly proceed as follows:

Remove the hood and drain the cooling system; then disconnect the headlamp wiring at the terminal blocks and disconnect the wiring loom along the top of the radiator support. Next remove the bolts which attach the fenders to the running boards and body. Remove the two (2) nuts from the radiator support. The radiator and fenders may now be removed from the chassis as a unit. Then remove the bumper and disconnect the stabilizer from the frame horns. Remove the pitman arm from the steering gear; remove the bolts which attach the front crossmember to the frame side rails and slide the front end assembly off the front of the frame side rails. The replacement operations are just the reverse of the removal operations.

If your hands become soiled with paint, lead or any poisonous substance, be sure to wash them before eating. Do not touch lips nor put anything into the mouth without this precaution.

GMC'S GOT THE POWER LINE! FOR 1939



See the New Lower-Priced

GMC TRUCKS

NEW — 6 lines of husky, low-priced GMC trucks . . . the "Power Line for 1939" . . . ½-ton, ¾-1-ton, 1½-ton, 2-ton Conventional, 2-ton Cab-over-engine, 2½-ton heavy duty . . . a range of big, powerful trucks that covers all Canadian hauling needs!

Both individual and fleet owners will be mighty interested in the 1939 edition of the GMC "Power Line" because these trucks offer Greater Mechanical Content . . . because they give more per dollar invested in economy, dependability and load-carrying capacity!

For complete information on the GMC Line for '39, including the complete Heavy-Duty and Diesel Units in capacities up to 15 tons . . . write GMC Truck Division, General Motors Products of Canada, Limited, Oshawa, Ontario.

IMPROVED GMC "224"
Six Cylinder, Valve-in-head
TRUCK ENGINE

V-TYPE SAFETY
3-MAN CABS

NEW 2-TON
CONVENTIONAL SERIES

NEW 2-TON MODELS
CAB-OVER-ENGINE

HEAVY DUTY
HYDRAULIC BRAKES

DIAPHRAGM SPRING
CLUTCH

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THE TRUCK WITH GREATER MECHANICAL CONTENT

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HE IS READY TO SERVE YOU AT ALL TIMES
HE WILL GIVE THE GARAGE TRADE LIBERAL DISCOUNTS
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